UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/767,522	01/23/2001	Lee M. Proctor	CE08569R	3399

22917 7590 11/21/2005	EXAMINER
MOTOROLA, INC. 1303 EAST ALGONQUIN ROAD IL01/3RD SCHAUMBURG, IL 60196	WOZNIAK, JAMES S

ART UNIT	PAPER NUMBER
2655	

DATE MAILED: 11/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/767,522	PROCTOR ET AL.
	Examiner	Art Unit	
	James S. Wozniak	2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>09 September 2005</u>.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle,* 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>8-14, 21 and 22</u> is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>8-14, 21 and 22</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>12 May 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All   b)☐ Some * c)☐ None of:

       1.☐ Certified copies of the priority documents have been received.

       2.☐ Certified copies of the priority documents have been received in Application No. _____.

       3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
     Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   In response to the office action from 5/12/2005, the applicant has submitted an

amendment, filed 9/9/2005, arguing to traverse the·art rejection based on the limitation regarding

updating a speech decoder filer state based on an error determination *(Amendment, pages4-6)*.

Applicant's arguments have been fully considered, however the previous rejection is maintained

due to the reasons listed below in the response to arguments.

Response to Arguments

2.   Applicant's arguments have been fully considered but they are not persuasive for the

following reasons:

       With respect to **Claim 9**, the applicant argues that the prior art fails to teach updating a

speech decoder filter state based on an error determination *(Amendment, Pages 4-6)*, however the

examiner notes that such a teaching is provided by Chen *(U.S. Patent: 5,751,725)* in view of

Jacobs et al *(U.S. Patent: 5,414,796)*.

       Specifically, the applicant argues that Jacobs fails to teach that pitch filter and codebook

excitation parameter updates depend on a data transmission rate (Amendment, page 5). In

response, the examiner points out the claimed invention requires the update of a speech decoder

filter state and that Jacobs teaches such a speech filter state update based upon a data

transmission rate, wherein the filter state is considered to be the factor relating to the number of

pitch parameter updates required by the pitch filter for a particular data rate *(Col. 7, lines 33-65)*.

In other words, according to the teachings of Jacobs, a full rate frame would require a different

number of pitch filter updates (different pitch computations) than a half rate frame and if such a

change in rate would occur, the factor relating to such an update number (pitch filter state

corresponding to a particular data rate) would need to be updated. Thus, since it is not currently

claimed how a speech decoder filter is specifically updated and Jacobs teaches that pitch filter

and codebook excitation parameters need to be computed differently based on a data

transmission rate according to state regarding the number of updates required by a speech

decoding filter, Jacobs teaches the aforementioned limitation. Also, as cited in the prior office

action *(prior office action, pages 2-4)*, if a value of a previous frame rate was determined to be

incorrect according to the teachings of Chen, a new and correct different frame rate would

require different pitch filter and code excitation parameters which would be computed according

to a different filter state regarding the required number of updated parameters for a particular

rate, as per the teachings of Jacobs. Thus, for the aforementioned reasons, Claim 9 remains

rejected.

With respect to **Claim 13**, the applicant argues that the prior art of record fails to teach

resetting a speech decoder filter *(Amendment, page 6)*. In response, the examiner points out that

Chen in view of Jacobs teach the means for updating a pitch filter state, as noted above. For

example, within the scope if the teachings of Chen in view of Jacobs, if a rate error was detected,

a filter state set an initial value would need to be set again or *reset* to correspond with the data

transmission rate. Thus, since Chen in view of Jacobs teach the means for resetting a pitch filter

if a frame rate error is detected, claim 13 remains rejected. The examiner further notes that

Jacobs also teaches an example of an eighth rate frame in which the pitch filter parameters are

reset to zero *(Col. 40, Lines 31-38)*.

As noted in the previous office action *(page 3)*, the examiner once again points out that

an amendment regarding the invalid frame rate transition rules (full rate to eight rate requiring a

half rate transition), detecting the frame rates by performing a progressive series of threshold

comparisons, wherein each threshold corresponds to a specific frame rate *(full rate, half rate,*

eighth rate- as disclosed in the specification, Pages 6-9), and what is specifically meant by a

speech decoder filter state may overcome the prior art of record.

The remaining dependent claims further limit a rejected independent claim, and thus, also

remain rejected.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

4.   **Claims 8-14 and 21-22** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Chen *(U.S. Patent: 5,751,725)* in view of Jacobs et al *(U.S. Patent: 5,414,796)*.

With respect to **Claim 9**, Chen discloses:

Receiving a frame and determining the rate of a frame (Col. 6, lines 1-6)

Determining if first frame rate was in error to produce an error determination, by applying more stringent thresholds when an error is suspected in the frame (Col. 9, lines 56-61). Specifically, this is done by comparing a rate of a current frame with a rate of a previous frame and adjusting the thresholds based on the results of comparison (Col. 11, Lines 25-30). Because the difference between frame rates is probabilistically unlikely (-10 %) (Col. 6, lines 16-18), the tightening of thresholds will ensure that transitional frames encoded at ½ and ¼ rates will not be mistakenly erased.

Chen does not teach that decoding a speech frame produces a speech decoder filter state, however Jacobs teaches that pitch filter and codebook excitation parameters depend on a data transmission rate *(Col. 7, Lines 33-36)*. Thus, in the case of Chen if a value of a previous frame rate was determined to be incorrect, the new and correct different frame rate would require different pitch filter and code excitation parameters (updated parameters) as per the teachings of Jacobs.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Chen as taught by Jacobs in order to reduce the effects of the wrong filter characteristics on the output of the decoder. By using the techniques taught by Jacobs et al., the system would be able to detect incorrect rate decisions and quickly adjust filter parameters in order to correct for the mistakes, thus avoiding the amplified noises, clicks, etc. in the output of the phone speaker.

As per **claim 8**, Chen does not disclose determining if the first frame was a signaling frame.

Jacobs et al. teach the use of blank frames in order to transmit signaling information, in which case the decoder filter coefficients are updated in order to mask the detected signaling frame (Col. 40, lines 39-47).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Chen as taught by Jacobs in order to reduce the effects of the wrong filter characteristics on the output of the decoder, when the frame contains no speech information. Therefore, the system would quickly adjust filter parameters in order to correct for the mistakes, thus avoiding the amplified noises, clicks, etc. in the output of the phone speaker.

As per **Claim 10**, Chen discloses determining if a transition between frames is invalid by applying tight maximum and minimum SER thresholds when rates differ between adjacent frames (applied threshold rules related to frame-to-frame transmission rates, Col. 11, lines 27-30). Therefore, the transition will be declared invalid if it passed under the old thresholds, but failed to meet the updated thresholds.

As per **claim 11**, Chen discloses determining a full and eighths frame rates for the first and second compared frames, respectively. (Col. 11, lines 15-25).

As per **claim 12**, Chen discloses determining a rate from a group of full, half, quarter and eighth rates (Col. 6, lines 1-6).

As per **claims 13**, Chen teaches the determination of whether a frame rate is correct, while Jacobs teaches setting speech decoder filter parameters based on a frame rate, as applied to Claim 9. Thus, if a previous frame rate is considered to be incorrect as applied to a current frame, a proper frame rate would be determined having pitch filter parameters based upon that rate, thus resetting the pitch filter using the new parameters.

As per **claim 14**, Chen does not disclose "updating the state of the speech decoder filter from a group consisting of a pitch filter, a vocal tract filter, and a post filter."

Jacobs et al. teach the use of pitch filter (elem. 156, FIG. 6), formant filter (vocal tract filter) (elem. 158, FIG. 6) and post filter (elem. 160, FIG. 6) in the design of variable rate vocoder.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Chen as taught by Jacobs to reduce the effects of the wrong filter characteristics on the output of the vocoder. Because the vocoder taught by Jacobs et al. comprises a pitch filter, a formant filter and a post filter, the steps of updating these filters' coefficients would reduce the undesirable noise produced by the phone when the decoder incorrectly identifies the frame rate.

With respect to **Claim 21**, Jacobs recites the resetting of the pitch filter parameters as applied to Claim 1, wherein the pitch filter parameters are part of an adaptive codebook memory *(Col. 11, Lines 54-57 and memory, Col. 44, Lines 10-13)*.

With respect to **Claim 22**, Chen teaches the means for detecting a frame rate determination error (no detection of an error would inherently indicate a correct frame rate determination) utilizing an SER threshold for both signaling and silence frames as applied to Claim 1, while Jacobs teaches the means of determining the presence of a signaling frame as applied to Claim 8.

Conclusion

5.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

6.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure:

Jayant et al *(U.S. Patent: 4,617,676)-* teaches a speech signal filter that is updated

according to a transmission rate.

Horvath et al *(U.S. Patent: 4,618,982)-* teaches a method for updating filter parameters at
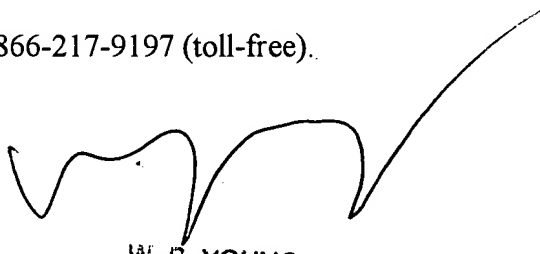
times determined by a frame rate.

7.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to James S. Wozniak whose telephone number is (571) 272-7632. The examiner can normally be reached on M-Th, 7:30-5:00, F, 7:30-4, Off Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on (571) 272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James S. Wozniak
10/25/2005

W. R. YOUNG
PRIMARY EXAMINER